

MONTANA FISH AND GAME DEPARTMENT

HELENA, MONTANA

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MEASURES FOR PRESERVATION OF FISH AND GAME VALUES IN ROAD CONSTRUCTION

1. The Fish and Game Department should be consulted in the reconnaissance or preliminary location survey stage of roads that will affect fish and game, and during various construction stages.
2. Roads should be kept away from streams (out of the flood plain) leaving a buffer strip of shade and ground cover.
3. Change stream channels on trout streams only where there is no alternative. In these cases retain as much of the original bends and meanders as possible. The original stream gradient should be maintained by meandering the new channel and placing large boulders in it to reduce the velocity and provide resting areas for fish. If this can not be done, pool step-down structures should be constructed; that is, a series of dams that will create pools and yet allow fish passage.
4. Stream meanders cut off by a road should be kept alive where possible by by-passing a flow of water with a volume equivalent to the normal summer stream flow. If necessary, water in excess of this could be diverted down the new channel. Where feasible, road fills could be used to impound water. The resulting ponds would mitigate part of over-all fisheries loss.
5. Stream bottom materials should not be removed or disturbed.
6. From the point of view of fish movement, bridges are more desirable than culverts. Culverts can be a barrier to fish passage. Open box culverts, that retain the original stream bottom are preferable to other types. These allow fish passage providing they are wide enough to prevent creation of high water velocities. The Fish and Game Department should be consulted when culverts are used on permanent streams. Sometimes fish passage will not have to be considered.

7. Sediment reduces fish production. Measures should be taken to insure a minimum of sediment reaches fishing waters during and following construction. For example, raw construction surfaces adjacent to streams should be replanted with vegetation.
8. With reference to limited access highways, turn-offs to adjacent fishing streams are needed at least every two miles and preferably more frequently. Sufficient parking area must be included. Failure to provide adequate access will significantly reduce use of the fishery resource. This in turn will have an adverse economic impact on businesses which serve the sporting public in the general vicinity.
9. Access to hunting areas also should be provided at least every two miles. Access points often could serve both hunting and fishing. As with fishing access, sufficient parking areas must be planned. Failure to do this will not only deny adequate use of the game resource, but in the case of big game, will introduce a serious public safety hazard.
10. Interstate highway fences will not prevent movement of deer, elk and moose onto right-of ways. As populations of such animals increase through lack of adequate hunting pressure, automobile collisions with these large animals will increase proportionately. This public safety problem has assumed serious proportions even on highways with much lighter traffic loads and lower speeds than on interstate highways.
11. Interstate highway fences will prevent normal movement of antelope herds. Where interstate highway fences block established antelope travel routes to water or winter ranges, fence modifications, underpasses or other provisions should be made to permit continual use by antelope.
12. The cost of protecting fish and game values should be included in the cost of road construction, as is the case when irrigation ditches, cattle crossings, power lines, etc. are involved.